

THE EARTHWORMS OF THE MALDIVE AND LACCADIVE ISLANDS.

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I BELIEVE that no collection of earthworms from these islands has ever been reported upon. I am therefore particularly obliged to Mr J. Stanley Gardiner and his colleagues for the considerable collection of these Annelids which they have made with so much care and have been so good as to place in my hands for study and description.

I have no general conclusions of importance to urge as a result of my examination of this collection, save to emphasise the belief, now becoming firmly founded, that these Annelids on account of the practical impossibility of their unassisted migration over tracts of sea will serve as the very best test of whether a given isolated island is truly oceanic or not. This is however subject, as Dr Michaelsen has pointed out, to one exception and that is the genus *Pontodrilus*. This genus, of which several species are now known, as a rule but not always lives upon the sea-shore in decaying sea-weed and such like *débris*; the nature of its habitat therefore precludes any impossibility of chance migration from the shores of one tract of land to the shores of another.

The present collection contains one undoubtedly new species of this nearly ubiquitous genus. And that is the only new form which I have found among the three species of earthworms upon which I report here. The rest are precisely what might be expected from the proximity of the islands to Ceylon and India; the two species are both of them common Oriental species. It is very probably in part the abundance of *Megascolex mauritii* which has led to its so wide range. But the relations between the ease with which various species can be transported to regions of quite a different climate and flourish there and other conditions have not yet been guessed at. The material in the way of fact is at present hardly sufficiently large.

1. *Pontodrilus laccadivensis* n. sp.

I have examined a large number of examples of this species which I at first took to be Dr Michaelsen's *P. matshusimensis*, var. *chathamianus*¹ on account of the nearly similar disposition of the anterior genital papillae. There is, however, not an exact correspondence in the position and number of them, while other features in the organisation of this *Pontodrilus* from the Laccadives forbid its identification with Michaelsen's variety. There is no other species to which it presents so close a likeness in external characters.

It is a long, slender species like other *Pontodrilus*, of 90 to 110 mm. in length. The prostomium impinges slightly upon the buccal ring. The clitellum occupies segments XIII—XVII, and there is always a ventral band left devoid of modification. I have studied 13 fully mature examples of this species, all of which show some of the anticlitellian papillae which distinguish this species from all other *Pontodrilus* except Michaelsen's variety. These papillae

¹ *Zool. Jahrb. Syst. Abth.* XII, p. 220.

are not, however, equally or similarly developed in all. In seven examples there are two papillae plainly visible; one lies between segments XII/XIII and is, as a rule, much more conspicuous by reason of its convexity than the second papilla, which is *not* intersegmental in its position. It lies on XIV, though near to the anterior margin of that segment and not between XIII/XIV. In six individuals one or other of these papillae was missing. In the last individual the two papillae were between XI/XII and XII/XIII, and both were of the same character. I may observe that the papilla upon segment XIV and that upon segments XII/XIII occasionally showed considerable traces of being double. In no individual did I find a papilla between XIV/XV such as is mentioned by Michaelsen in his description of *P. matsushimensis* var. *chathamianus*. In addition to these papillae there are, as Michaelsen has pointed out, others situated more anteriorly still.

In four individuals there were very evident long, dumb-bell shaped thickenings of the integument occupying the intersegmentary regions VII/VIII and VIII/IX. Each is median and unpaired and ends at the conspicuous orifices of the spermathecae. They do not obliterate the intersegmental grooves. The orifices of the spermathecae correspond to the outer section of the ventral couple. The male pores lie in an area which appears to me to be exactly like that figured by Izuka for *Pontodrilus matsushimensis*¹. It is quite conspicuous even in immature individuals. So also is the one genital papilla which follows the male pores. This is as usual on the intersegment XIX/XX and is generally hollowed out and sucker-like. It is even apt to be squarish in outline.

As to the internal characters of this species the chief facts which I have observed are the following: the specially thickened mesenteries are those which divide segments VI/XIII, and they are all cup-shaped, with the concavity, of course, anterior. The gizzard is feeble, but still recognisable; it lies in the VIIIth segment. In the XIIIth segment are a pair of conspicuous and presumably contractile hearts. The nephridia begin in segment XIII.

The racemose sperm sacs lie in segments XI and XII. The spermathecae are plainly divisible into a thin walled sac and a shorter thick walled duct. The tubular diverticulum is fully as long as the pouch. The spermiducal glands have a long, curved, muscular duct of glittering appearance, fully 2 mm. long.

Locality: Minikoi, Laccadive Islands; and Goidu, Goifurfehendu² and Hedufuri, S. Mahlos³, both Maldive Islands.

2. *Megascolex mauritii* (Kimb.).

Lampito mauritii Kinberg Öfv. Sv. Ak. Förh. 1867, p. 103.

This very common and widely spread Oriental species is abundant in the collection.

Localities: Kumfinadu and Madu, both S. Mahlos; Maungudu, Miladumadulu; Goidu, Goifurfehendu; Hulule, Male; Maradu, Addu, all Maldive Islands; and Minikoi, Laccadive Islands.

3. *Perionyx*, sp.

A number of examples of this characteristic Oriental genus were collected, but they were quite immature and I am therefore unable to identify the species.

Localities: Madu, S. Mahlos; Fainu, N. Mahlos; and Maradu, Addu, all Maldive Islands.

¹ *Annot. Zool. Japon.* II. i. p. 21, Tab. 2, fig. 1.

² A single specimen from this locality may possibly not belong to the same species; it was immature, but I refer it to *P. laccadivensis* on account of the exact similarity of the spermiducal glands and of its general appearance to that

species.

³ The same observation applies to a few specimens from this locality. The spermathecae however were well developed and had each a long diverticulum, thus increasing the likeness to the examples from the Laccadives.